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State of Utah
DEPARTMENT OF ENVIRONMENTAL QUALITY
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DIVISION OF
OIL GAS & MINING

April 23, 1993

Mr. Glen Eurick
Barrick Mercur Gold Mines, Inc.
P.O. Box 838
Tooele, Utah 84074-0838

RE: Heap Leach No. 1 Closure Plan

Dear Mr. Eurick:

We have reviewed your proposal for the closure of Heap Leach No. 1. The proposal was further discussed in a meeting on April 14, 1993 between yourself, your consultants Messrs. Brian Buck of JBR Consultants and J.R. Brown of Dames and Moore respectively, and the representatives of the Division of Water Quality. Based on the discussion at the meeting, our comments are as follows:

1. The closure plan approved as part of the Construction Permit issued on August 9, 1985 was based on the integrity of the liner system and the design permeability (K) of 1×10^{-7} centimeter per second. In terms of providing an equivalent barrier for prevention of water infiltration, the permeability specification greater than 1×10^{-7} centimeter per second for the closure cap would be unacceptable in light of the leaking liner system. Also, in order to maintain the required permeability, the top of the clay closure cap must be below the maximum anticipated frost depth at the site.
2. Measures should be provided to protect this cap during the interim use of this site as a storage platform for tailings to be used in the mill process. The subsoil should be scarified to facilitate future plant growth prior to the placement of topsoil.
3. The post closure monitoring period should continue at least as long as this mine is operational. It may have to be extended based on the data gathered during the period.
4. The latest reported sample of the rinsate, taken on July 14, 1992 shows metals like arsenic, copper, lead, cyanide, and mercury exceeding the ground water quality protection standards significantly. Based on the predicted flow quantities and qualities, a basic pathway and fate analysis should be prepared in justification of this proposal. This does not necessarily have to be an elaborate research project but should demonstrate a reasonable rationale that ground water standards will not be violated.


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5. The proposed 10-foot thick lifts of the bulk fill are too high to assure a reasonable compactive effort. Also, some compaction value for this fill should be specified.
6. Specific information as to the size, capacity, liner, etc should be provided for the proposed lined runoff conveyance ditches on the East and West sides of the dump.
7. The operating pregnant solution pumping system and the leakage collection pumping system should be left in place at least for the duration of the monitoring period, and should not be removed without prior approval of the Division.
8. In Item 5.3, page-4, the topsoil thickness should be 12 inches as per the August 9, 1985 construction permit, rather than 6 inches as proposed.
9. The parameters to be monitored during the post closure period should include the metals listed in Table I of the Ground Water Quality Standards, WAD and total cyanide, general field parameters, basic ions and total dissolved solids.
10. In Item 5.4, page 4, "adequate plant growth" should be defined in terms of percent areal cover as this has been factored in the HELP model and will facilitate compliance with the specifications.
11. Table 1: Specifications for the clay liner should be provided including, but not limited to, gradation, moisture content, P.I., compaction, permeability, construction QA/QC, etc.
12. Table 1: Specifications need to be provided for the top soil and sub soil to assist in the ground water hydraulic assessment as discussed in the April 14, 1993 meeting with you.

Please contact C.C. Patel of our staff if you have any questions or need further assistance.

Sincerely,

Utah Water Quality Board



Don A. Ostler, P.E.
Executive Secretary

DAO:ccp:

cc: Division of Oil, Gas and Mining
Tooele County Health Department
JBR Consultants